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The External Debt Difficulties of Low-Income Africa

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The debt crisis that affects middle-income developing countries gets more publicity than the one that affects low-income African countries — but the debt service in 10 of those countries averages 80 percent of annual exports. Poverty and economic rigidities make it hard for them to grow out of their debt problems without increased concessional aid and debt rescheduling.

Two debt crises affect developing countries. The more publicized crisis affects the middle-income Baker Plan countries, including Nigeria and Cote d'Ivoire. The less well known crisis affects most of Africa's 34 low-income countries.

The total external debt of these countries — about \$70 billion — is less than the debt of Mexico alone. International bank exposure there is less than \$10 billion. Low-income Africa's external liabilities are mainly loans from, or guaranteed by, official creditors. Their debt represents no threat to the international financial system, so it generates little publicity.

But their external debt represents, by many measures, a more severe economic burden than the debt of the middle-income countries. Ten of the most severely indebted African countries owe an average of over 1,000 percent of their annual exports.

Poverty and economic rigidities in the African countries make it harder for them to

grow out of their debt problems without special assistance. These countries are more dependent than the highly indebted countries on primary commodity exports, which often require long investment periods to increase production. Expanding the output of tradable goods, which is central to adjustment, is difficult and likely to be slow.

Recognizing the problems of these countries, several bilateral donors have converted concessional development loans to grants in many of these countries. Donor governments have endorsed concessional debt relief. The near-term relief from rescheduling will not be great, but the principal of orderly debt reduction has been put into practice.

Debtor countries must take the lead in establishing and maintaining workable medium-term adjustment programs. Once adjustment is occurring, it is in the interests of donors and creditors to continue supporting recovery well into the 1990s.

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Two debt crises affect developing countries. The more highly publicized crisis affects the middle-income "Baker Plan" countries, including Nigeria and Cote d'Ivoire in Sub-Saharan Africa. The other, less well known, debt crisis affects the majority of a set of 34 low-income African countries. (See Annex table 2 on page 42 for a list of low-income African countries.) The total external debt of these countries, about \$70 billion, is less than Mexico's alone (see Annex table 1, page 41.) International bank exposure there is less than \$10 billion. Low-income Africa's external liabilities are mainly loans from, or guaranteed by, official creditors.

Because their debt represents no threat to the international financial system, these countries receive very little publicity about their plight. Yet, their external debt represents, by many measures, a more severe burden to their economies than the middle-income country debt represents to those economies. Ten of the most severely indebted low-income African countries owe, on average, over 1000 percent of their annual exports. Scheduled debt service for these ten countries averages 80 percent of annual exports. The latter ratio--which unlike the debt to export ratio--takes into account the more concessional terms of low-income Africa's debt, is 40 percent higher than the comparable ratio for the highly indebted middle income countries (HICs).

In addition, the poverty and economic rigidities in these countries make it harder for them to grow out of their debt problems without special assistance. Low-income African countries are more dependent than the HICs on primary commodity exports, that often require long investment periods to

increase production. They live in more difficult conditions in terms of the availability of health care and of access to safe drinking water. Their education systems completely miss over a third of school age children. Under these conditions the expansion of the output of tradable goods that is central to adjustment is difficult and is likely to be slow.

Official creditors and donors have recognized the severe and long-term nature of the debt and development problems facing highly indebted low-income countries. Since 1978, several bilateral donors have converted concessional development loans to grants in many of these countries. The World Bank's Special Program of Assistance (SPA) and the Fund's Enhanced Structural Adjustment Facility (ESAF), both backed by bilateral donors, were launched in 1987 to address these problems more directly. Most recently, at the 1988 Toronto Summit, donor governments endorsed concessional debt relief for low-income debt-distressed countries. Industrial-country governments have worked out the forms of that relief and have rescheduled debts of the Central African Republic, Guinea, Niger, Madagascar, Mali, Senegal, Tanzania, and Uganda under the new arrangements. The near-term relief from these reschedulings will not be large, but the important principal of orderly debt reduction has now been put into practice. Together, these actions by official creditors and donors are important steps in restoring normal creditor-debtor relationships in these countries. In some countries, more will be required, in terms of larger assistance or the maintenance of a high level special assistance for some time beyond the scheduled expiration of the SPA and other special programs.

Although they are not a major share of total claims on low-income African countries, commercial bank claims remain a significant problem in some of the most debt-distressed low-income African countries. The additional aid

and debt reduction provided by official creditors may tend to benefit commercial banks disproportionately. Some method of burden sharing would help to ensure that these official resources support growth. One method would be the use of concessional aid to buy up long-term commercial bank claims, at heavily discounted prices, and pass the discount on to the debtor country. This process would be similar to the Bolivian buy-back, but if possible without the price increases that resulted from the Bolivian buyback. Other methods include increased official tax and regulatory support for commercial bank donations of claims to aid or charitable organizations. The organizations would use the local currency payments to support their programs in the debtor country.

To grow out of debt difficulties, even with the extraordinary external support forthcoming, debtor countries must take the lead in establishing and maintaining workable medium-term adjustment programs. It is in the interest of donors and creditors to provide adequate external resources to support these programs, once orderly and sustained adjustment is occurring. The external support now in place covers mainly the years 1988-90. With its economic rigidities, low investment and savings rates, and infrastructural weaknesses, recovery in low-income Africa will extend well into the next decade. Donors must keep in mind the special external financing needs of these countries after 1990, especially during discussions surrounding the upcoming Ninth Replenishment of the International Development Association, the soft-loan window of the World Bank.

Why Low-Income Africa's Debt Problem is Different

Origins of the Debt Problem

The origins of low-income Sub-Saharan Africa's debt problem are in many respects similar to those in other highly indebted countries. World commodity prices, in real terms, for many of their major commodity exports (including bauxite, cocoa, coffee, cotton, sugar, tea, groundnuts, and uranium) peaked in the mid- or late 1970s. These commodity booms lowered the real cost of borrowing (it was negative in the last half of the 1970s) and led to optimistic expectations that future export revenues would rise in line with the growth in external obligations.

This optimism fueled two converging tendencies. Strong commodity prices increased government revenues and allowed governments to ratchet up expenditures, which were difficult to compress when commodity prices fell (Krumm 1985). But these low-income countries appeared creditworthy at a time when export credit agencies were under pressure to promote exports to help offset the rising cost of oil imports. As a result, there were short, but intense, bursts of ECA-financed (or guaranteed) exports to low-income Africa, for intermediate and capital goods. Direct and guaranteed export credits grew rapidly during the 1970s (see table 1). In addition, a few low-income African countries had some access to the international syndicated loans of commercial banks.

Even countries that did not go through major commodity export price booms (for instance copper exporters like Zaire and Zambia and iron ore exporters like Liberia and Mauritania) could borrow more because of their previous growth, their mineral reserves, and the expectation that these mineral prices would eventually rise along with those of other commodities.

TABLE 1: Borrowing by Low-Income Africa, 1970-87

(billions of U.S. dollars; numbers in parentheses are percentages)			
	<u>1970</u>	<u>1980</u>	<u>1987</u>
Total nonconcessional debt	2.0	18.2	37.5
(Share of total long-term debt)	(48)	(65)	(63)
ECA-type debt	1.0	10.1	19.0
(Share of total long-term debt)	(25)	(36)	(32)
Debt service payments on ECA-type debt	0.1	0.9	0.9
(Share of payments on total long-term debt)	(42)	(41)	(34)

Source: World Bank Debtor Reporting System.

Note: Excludes short-term debt. ECA-type debt is defined as direct bilateral official nonconcessional lending plus all private-source suppliers credits and fixed-rate commercial bank loans, which are assumed to be guaranteed by creditor governments or agencies.

Many African economies fell out of step with the world economy when too optimistic images of the future faded and unrealistic development strategies failed. Export prices declined sharply, growth in industrial countries slumped, governments were slow to react, and the economies were unable to adjust. The conditions of these nonconcessional export credits turned out to be unrealistically hard, in terms of both interest rates and repayment periods.

The windfall resources from the boom years of the late 1970s and early 1980s did not accelerate development. Instead, they led to unrealistic expectations, overextended borrowing on commercial terms, and an unmanageable debt burden.

The Contrast Between Low-Income Africa and the Highly Indebted Middle-Income Countries

There are differences with the highly indebted middle income countries. (See table 2 for a list of the latter countries.) Increases in

real interest rates were less of a factor in low-income Africa, the debt crisis came earlier, and, most importantly, the debt burden is, by most measures, more severe.

Although the unexpected increases in real interest rates were a key element in the highly indebted middle-income countries' debt crisis (Cuddington 1989), they played a much smaller part in low-income African countries because much less of their bilateral official and private debt is denominated in variable rates (5 percent compared to 66 percent for the highly indebted middle income countries in 1987).

The debt problem emerged earlier in low-income Africa than in the highly indebted middle income countries. Beginning with Zaire in 1976, 10 low-income African countries rescheduled official claims on 19 occasions and commercial bank claims on five occasions before the first rescheduling by a highly indebted middle-income country in 1982. Though the origins may be similar, the debt problem in low-income Africa is more severe and less easy to correct without special help.

Low-income Africa is more heavily indebted. Although the amounts are small relative to financial stocks and flows in other developing countries, the debt is worse for many low-income countries. The usual ratios are as severe, and the economies of these countries are less able to absorb the required adjustments (see table 2).

Table 2: Indicators of Debt Burdens, 1987
(billions of U.S. dollars; numbers in parentheses are percentages)

	Highly Indebted Mid.-Inc. Cos.*	Low- income Africa	Low- income Asia**
Total debt (official)	527 (28)	71 (77)	113 (68)
Debt service payments (official)	56.4 (33)	4.2 (68)	11.8 (56)
Ratio of debt to exports	(357)	(520)	(158)
Ratio of debt to GNP	(63)	(104)	(19)
Debt service ratio (payments basis)	(38)	(31)	(17)
Debt service ratio (obligation basis, using 1987 exports)	(59)	(52)	(17)

Source: World Bank Debtor Reporting System.

Notes: Total debt includes IMF and short-term obligations. Debt-service payments include IMF repurchases and charges and estimated interest on short-term debt.

*/ Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cote d'Ivoire, Ecuador, Jamaica, Mexico, Morocco, Nigeria, Peru, Philippines, Uruguay, Venezuela, and Yugoslavia.

**/ Bangladesh, Bhutan, Burma, China, India, Lao PDR, Maldives, Nepal, Pakistan, Sri Lanka, and Vanuatu.

Most methods of assessing debt burdens show low-income Africa faces a more difficult debt situation than the highly indebted middle income countries and than other low-income countries in other developing regions. The most severely indebted low-income Africa countries owe debt amounting to almost 100 percent of their GNP and 500 percent of their annual exports. These debt ratios are nearly double those in the highly indebted middle income countries. The comparison with low-income Asian countries, where the external debt ratio averages less than a third of the ratio in the severely indebted low-income African countries, is more telling.

Because more of this debt is concessional (almost half of total debt in low-income Africa compared to 5 percent in the highly indebted middle income countries), the usual ratios may overstate low-income Africa's real debt burden.^{1/} The most straightforward adjustment for concessionality is to reduce the debt stock by its grant equivalent, which can be estimated as the difference between the nominal value and the discounted present value of all scheduled debt service on all outstanding debt. The estimated grant equivalent in low-income Africa's existing debt is about \$17 billion. On this basis, its ratios of debt to GNP and to annual exports drop to about 80 and 400 percent, respectively. Even adjusting for this higher concessionality, low-income Africa's burden (debt as percentage of exports and GNP) remains more severe than the highly indebted middle income countries. In addition, the bite that debt-service payments takes out of exports is about as large.

But one element that mitigates low income Africa's debt burden is the high level of grants in its capital inflows. Grants make up more than half of the total gross capital inflows of IDA-eligible countries in Sub-Saharan Africa, compared with less than a fifth for the rest of the region (World Bank, 1989). In 1987, grants were \$6.4 billion, including technical assistance grants that are 35 to 40 percent of the total. If these grants were included in export receipts in that year, the adjusted debt service ratio would have been much lower than the conventional debt service ratio (21 percent compared to 31 percent).

^{1/} Debt is conveniently defined as concessional when its terms are long enough and its interest rates low enough that it contains an implicit grant element of at least 25 percent, using a discount rate of 10 percent. (See OECD 1987, Annex.) Because of the convention of using a 10 percent discount rate, debt on regular commercial terms may appear to have a grant element. This anomaly can be eliminated by using the current commercial interest rate as the discount factor.

No matter how it is measured, the strong conclusion from these data is that low-income Sub-Saharan Africa is more severely indebted. The short-term real cost of this higher indebtedness (debt service paid) is almost as severe for low-income Africa as for the highly indebted middle income countries when compared to export receipts. But the region's capacity to bear this more severe burden is limited by its weaker, more rigid, economies.

Economic Factors Behind Low-Income Africa's Debt Difficulties

Although the origins and characteristics of their debt problems are similar, the weaker, less flexible economies in low-income Africa limits more severely their ability to adjust sufficiently and rapidly enough to restore creditworthiness. Structural economic rigidities have been compounded by policy rigidities. These economies have an arguably lower capacity to adjust to their debt burdens. As a result, a strategy of simply delaying debt service payments to allow these countries to grow out of their debt problems is much less likely to work.

Structural weaknesses. Structural weaknesses preclude most of these economies from achieving the rapid growth necessary to escape from their debt difficulties under conventional debt relief mechanisms. They are smaller, poorer, and more dependent on primary commodities than the Highly indebted middle income countries. The lack of a diversified economy and export base makes it more difficult to adjust to changing world economic conditions.

Population growth is higher by almost a percentage point compared to the Highly indebted middle income countries (see table 3), making it harder both to increase per capita income and to provide for basic human needs. Living conditions and the quality of human capital are worse. Infant

mortality is about double than in Highly indebted middle income countries. Life expectancy is some ten years less than in the Highly indebted middle income countries. Only about two-thirds of the school-aged children attend primary school compared with almost 100 percent in the Highly indebted middle income countries; and only 16 percent attend high school compared with about half in the Highly indebted middle income countries. Relative to population, there are seven times more physicians in the Highly indebted middle income countries.

Savings and investment rates are, on average, the lowest in the developing world, making it harder to strengthen their productive base; savings rates are only a third those in the Highly indebted middle income countries and investment rates, for all low-income Africa, are some five percentage points lower (see table 3). Low-incomes make it difficult to increase investment and savings. They are almost twice as dependent on imports as the Highly indebted middle income countries, but their export shares are not much larger. Consequently, low-income Africa countries have substantial resource gaps, and foreign capital is essential both to finance trade deficits and domestic investment. Gross aid flows, including technical assistance and other grants, are about US\$10 billion a year, equivalent to about 90 percent of gross domestic investment in these countries, and are three times their actual debt service payments on nonconcessional debt.

Investments that are made are less productive. Incremental capital output ratios (ICOR) measure the units of investment required to raise annual output by one unit; smaller ratios imply greater efficiency and productivity than higher ratios. Those in low-income Africa are much higher than in the Highly indebted middle income countries. During the 1970s, the best ICORs in low-income Africa (about five, with most being much higher) were about the

same as the worst ICORs in the Highly indebted middle income countries (most were about three).

Table 3: Indications of Structural Differences Between Low-Income Africa and Highly Indebted Middle Income Countries

	Low-income Africa	HICs
Average population per country (millions, 1987)	9	36
Population growth (annual percentage, 1987)	3.1	2.4
GNP per capita (ATLAS basis) (US\$, 1987)	287	1452
Gross domestic savings (percent of GDP in current prices, 1986-87)	6	14
Gross domestic investment (percent of GDP in current prices, 1986-87)	14	20
Exports as share of GDP (percent, 1980-86)/a	19	16
Imports as share of GDP (percent, 1980-86)/a	28	15
Share of manufacturing in exports (1986-87, percent)	8	26

Source: World Bank data files.

Notes: Averages are weighted
/a Goods and nonfactor services

Their economic performance has been poor, both before and during the debt crisis. GDP grew in low-income Africa by only 2 percent a year in 1970-80, declining in per capita terms. Over the same period, GDP grew by almost 6 percent a year in the highly indebted middle income countries. Since the onset of the international debt crisis in 1982, when new flows of

nonconcessional capital virtually dried up for these countries, their export growth has been lower and more erratic than that of the Highly indebted middle income countries and their per capita consumption has been declining faster (see table 4). Low-income Africa's export volume is lower now than in 1970, and the failure of exports to expand in line with expanding world trade (including that in primary commodities) goes far in explaining the region's debt servicing difficulties. If these countries had simply maintained export growth in line with other developing countries, their debt service ratio in 1987 would have been more than a third lower. Had they simply maintained their market shares in developing countries' nonoil primary commodities, the additional export revenue would have amounted to about twice as much as their debt service payments in the mid-1980s.

The failure to diversify their exports out of primary commodities has also contributed to their problems coping with higher debt burdens. Manufactured exports represent the most rapidly growing segment of developing country exports, and have had by far the highest growth rate of exports from the Highly indebted middle income countries during the 1980s. But the Highly indebted middle income countries also increased substantially the volume of nonoil primary exports as well, in contrast to the decline in these in low-income Africa.

Table 4: Selected Economic Indicators

	Low-income Africa	HICs
GDP growth (1982-87, annual percentage)	1.8	2.0
Export growth (1982-87, annual percentage)	0.6	4.3
Instability of export revenues (1970-85, median country values)	20.8	20.2
Import growth (1982-87, annual percentage)	-1.1	-3.0
Per capita consumption growth (1982-87, annual percentage)	-1.7	-0.4

Sources: World Bank data files and Development Committee Pamphlet No. 15

Notes: Growth rates are weighted and computed in constant prices using least squares regression.

Poor policies have compounded these structural rigidities and contributed to poor performance. As in the highly indebted middle income countries, these must also be rectified if the region is to recover from the debt crisis. These have been dealt with at length elsewhere, including recent progress on reforms. However, regardless of the reforms adopted, developing a solution to their debt problem depends on the structure of their debt.

The Structure of Low-Income Africa's Debt is Different

Almost 90 percent of low-income Africa's total debt represents claims directly from or guaranteed by official agencies, both bilateral and multilateral. (See appendix tables 1 and 2 for a creditor breakdown of low-income Africa's debt.) Thus, the bulk of the creditor effort to help deal

with the problem in these countries must be by official agencies, not commercial banks. In the short run, efforts of official creditors must focus on reducing debt service obligations and payments in an orderly fashion, and on increasing gross capital inflows.

Well over half (60 percent) of the official claims are bilateral, including private loans guaranteed by official export credit agencies. Most low-income African countries could not borrow to any significant degree without external guarantees provided by official export credit agencies. When borrowers were unable to pay debt service due on these loans, the ECAs have picked up these claims. Altogether, private lending by commercial banks and suppliers to low-income African countries accounts for about eight percent of their total debt, or a quarter of their nonconcessional, bilateral official debt.^{2/}

About half (52 percent) of this bilateral official and officially guaranteed debt is nonconcessional. Although official bilateral nonconcessional direct and guaranteed loans (mainly ECA exposure) represented almost 30 percent of the long-term debt in these countries, it accounted for 27 percent of debt service payments on long-term debt (including IMF transactions) in 1987 and 53 percent of scheduled debt service obligations in 1988.

Multilateral creditors, including the IMF, hold about \$25 billion (39 percent) of the claims on low-income Africa. More than 60 percent of these claims are at concessional interest rates and represent a small proportion of scheduled debt service obligations.

^{2/} This figure includes only guaranteed debt for which the guarantee has not been called. It has been estimated from the loans recorded in the Debtor Reporting System on the assumption that all suppliers credits are guaranteed and all commercial bank loans issued with fixed interest are guaranteed.

Table 5: Low-Income Africa's Multilateral Debt

	US\$ billion	percent of total long-term
Multilateral debt, 1987	25.5	39
of which:		
World Bank	3.0	5
IDA	9.6	15
IMF	5.6	9
AfDB/F	2.8	4
Debt service payments on multilateral debt, 1987	2.0	54
of which:		
World Bank	0.4	10
IDA	0.1	3
IMF	1.0	27
AfDB/F	0.2	5

IDA, the soft loan window of the World Bank, holds almost \$10 billion in claims on the 34 countries (excluding Mozambique) and is their largest single creditor. Although IDA credits account for 15 percent of their total long-term debt, debt service to IDA amounted to less than three percent of their actual long-term debt-service payments in 1987.

Private commercial lending to low-income Africa, mostly by commercial banks, that is not guaranteed by creditor governments or agencies is relatively small--less than \$10 billion (13 percent) of total external debt. Most of this is short-term debt, including interest arrears on long-term debt. In several of the most severely indebted low-income African countries,

a large share of this debt is in arrears.

This debt structure contrasts sharply with that of the highly indebted middle income countries, whose claims are highly concentrated in private creditors (three-fifths), with less than a fifth from bilateral creditors (direct and guaranteed) and the rest from multilateral creditors (see table 6). The small residual amount represents claims of nonbank private creditors.

Table 6: Summary of Debt Structure

	Low-Income Africa	HICs
Official direct bilateral		
US\$ billion	30	54
percentage	42	12
Creditor guaranteed/a		
US\$ billion	6	34
percentage	9	7
Multilateral		
US\$ billion	26	83
percentage	36	18
Private (including short-term debt)/b		
US\$ billion	9	357
percentage	13	78

Source: World Bank Debtor Reporting System.

Notes: a/Defined as suppliers credits and fixed-rate commercial bank loans.
b/Defined as private loans not guaranteed by debtor governments, variable rate commercial bank loans, short term debt (which may include interest in arrears on public loans), bonds, and nationalization obligations.

Assessing The Magnitude of the Debt Problem

The low-income countries of Sub-Saharan Africa are much less creditworthy than had been anticipated at the time the bulk of the original nonconcessional loans were made. Their current debt structure is, in most cases, inappropriate to their current economic circumstances or prospects. Marginal adjustments to past strategies for dealing with debt problems are, with few exceptions, not sufficient to resolve their debt distress.

Medium-term projections made in 1986^{3/} show that many of the low-income African countries will face continuing debt problems. Most of the 34 countries would be unable to finance imports adequate for adjustment and growth, while at the same time servicing their existing debts. Additional borrowing to fill the gaps--assuming creditors were prepared to lend--would push future scheduled debt service ratios well above levels that these countries have been able to meet in the past. Some of the assumptions about export price and volume growth made then appear optimistic now, reinforcing the results of that study.

The magnitude of the effort that might be required to extract low-income African countries from their debt difficulties can be assessed by analyzing the 19 countries currently eligible for the Bank's Special Program of Assistance (SPA) for debt distressed low-income African countries. Real imports are targeted to grow at a rate one percentage point faster than population growth, starting from a 1988 base, providing for some recovery of imports from the extremely depressed levels of the mid-1980s. (This level of imports in 1988-90 corresponds to that agreed to by donors in setting targets

^{3/} World Bank 1986.

for the SPA.) The target growth rate of real imports translates into an eight percent nominal growth rate. (See appendix table 3.) With projected export growth of eight percent in nominal terms, which is a turnaround from the declines in export volumes over the last 20 years, the implied current account deficit (before receipt of grants) would be \$8.8 billion in 1989.

In the first exercise, the nonconcessional equivalent of the 19 countries' total external debt was held constant, relative to exports through 1995. This target would represent a minimum requirement: creditworthiness should not deteriorate.^{4/} The change in the level of nonconcessional debt is the sustainable current account deficit in each year after grants and payment of interest. The difference between this current account deficit and net exports of goods and all services is the necessary level of grants. The results of this exercise indicate that the grant equivalent of any combination of loans and grants must be 68 percent to keep the ratio of the nonconcessional equivalent of debt to exports constant. At one extreme, commercial-rate loans can be combined with pure grants. The other extreme would be financing entirely by concessional loans with a 68 percent grant element.^{5/}

To represent a move toward potential creditworthiness, the target ratio of the nonconcessional equivalent of debt to exports was lowered to 200 percent in 1995, compared with its present level of 330 percent. Casual empirical work indicates that a debt to export ratio of 200 percent is a rough divider between countries that have maintained creditworthiness and those that

^{4/} The nonconcessional equivalent of debt was calculated as the present discounted value of scheduled debt service payments on disbursed debt, using a discount rate of nine percent. An average nine percent rate of interest was also assumed on the nonconcessional equivalent debt over the projection period.

^{5/} Grants can include the grant equivalent of debt forgiveness.

experienced debt servicing difficulties. This ratio would be an upper bound to creditworthiness in low-income Africa, given the lower short-term growth potential of the region.

Achieving this target path of debt would require reducing debt by almost \$12 billion dollars as measured in terms of its net present value. The grant equivalent of the debt relief required annually between now and 1995 would raise the overall grant equivalent of all combined grant and loan flows to these 19 countries to over 90 percent.

These results indicate the extent of medium term support that these low-income debtor countries need in aggregate. A case-by-case study, taking into account the conditions of individual debtor countries would be required to make a more definitive calculation for specific countries.

Responses to Date

The low-income countries of Sub-Saharan Africa have benefitted from both regular and special measures to help alleviate their debt problem. These include reschedulings, cancellations of concessional debt, increased concessional inflows, and concessional debt relief. Because of some of these measures, debt service payments have, in aggregate, been less than their level of debt, even adjusted for its higher concessionality, would have suggested.

Reschedulings. During 1980-88, 21 of the 25 Sub-Saharan countries that rescheduled their debts with official and private creditors were low-income. These countries had 88 agreements within the multilateral frameworks of the Paris and London Clubs, about 85 percent of the total. About three-fourths of these agreements were with the Paris Club, and, in total, during the eight years 1980-87, these Paris Club reschedulings reduced scheduled debt service payments by \$10 billion,^{6/} which is equivalent to 57 percent of the total debt service payments. The annual consolidation of debt service obligations has been increasing, from an average of \$0.6 billion in 1980-81 to a peak of \$1.8 billion in 1986.

Nor is the official debt of other creditors fully serviced. Paris Club agreements oblige debtor governments to seek parallel treatment from its creditors that do not participate in the Paris Club, especially Arab and Eastern bloc countries. Although details of such arrangements are seldom reported, it would appear that only about one-third of the obligations on Soviet debt and only about -----of those on Arab debt are being

^{6/} This amount is a gross reduction; it does not take into account the moratorium interest payments on the consolidated debt service.

regularly paid.

In June 1987, the economic summit in Venice agreed that "for those of the poorest countries that are undertaking adjustment efforts, consideration should be given to the possibility of applying lower interest rates on their existing debt, and agreement should be reached, especially in the Paris Club, on longer repayment and grace periods to ease the debt burden." After that date, several reschedulings by the Paris Club have reflected the new approach. Mozambique, Somalia, Guinea-Bissau, Niger, and Malawi all received 20-year maturities, including 10 years' grace, compared with 15-year maturities with six years' grace for the five other low-income Sub-Saharan African countries that rescheduled over the same period.

Debt Cancellation. In 1978, the UNCTAD adopted a resolution calling on official creditors to cancel concessional debt owed to least developed countries (27 of the 34 low-income African countries are currently classified by the UN as least developed). During 1978-87, 14 OECD countries that are members of the Development Assistance Committee (DAC) cancelled over \$1.4 billion of concessional debt, about a fifth of their concessional loans to IDA-eligible countries in the region.^{7/} Much of the service on this debt would probably have been rescheduled by the Paris Club (about \$1.2 billion in debt service owed on concessional debt was rescheduled in 1980-87, or about \$150 million per year). Thus, the additional savings in any year from the cancellations would amount to only the moratorium interest charges on the consolidated amounts, or some \$5 million per year on average. But the additional savings from cancellation would increase over time, because cancellations would reduce the growth in the stock of consolidated debt

^{7/} These creditors report higher cancellations--about \$2 billion for 1978-87/88, which is two-thirds of their cancellations worldwide. (UNCTAD 1988).

service from rescheduling, which progressively increases moratorium interest charges.^{8/}

Increased Official Aid Flows. In addition to their efforts to alleviate debt burdens directly, creditor governments and agencies have sought to increase the net flow of new funds. Multilateral agencies (including the IMF) have increased their net ODA disbursements to Sub-Saharan Africa even faster than bilateral donors have. When deflated by the region's import prices, net ODA disbursements (including grants) by multilateral agencies grew by 12 percent a year between 1983 and 1985 and by 13 percent a year in 1986 and 1987. IDA accounts for most of this increase; since 1983, net disbursements from IDA have grown 25 percent a year in real terms, three and a half times the annual rate for other multilateral agencies. Bilateral ODA rose by 12 percent a year in 1986 and 1987, as measured by the volume of imports the aid could finance, despite the shrinking global volume of aid and the decline of food aid and emergency relief for the Sub-Saharan Africa since 1985.

The World Bank's Special Program of Assistance. At a donors conference in December 1987, the World Bank formally launched the Special Program of Assistance for low-income, debt-distressed countries in Sub-Saharan Africa. The objective of the three-year (1988-90) program is to help eligible countries adjust and grow, while restoring and sustaining normal debtor-creditor relationships. The program provides for substantially increased highly concessional, quick-disbursing financing, and debt relief on softer

^{8/} To illustrate, \$150 million rescheduled annually at 3 percent interest would, after 8 years, give rise to additional interest obligations of \$180 million per year.

terms to expand import capacities in eligible countries.

Donors have agreed on three eligibility criteria for the SPA: first, poverty (eligibility for IDA credits but not IBRD loans); second, debt problems (originally a projected debt service ratio of 30 percent or more in 1988-90); and third, adjustment (currently implementing a policy reform program supported by the Bank and IMF, including agreement on a Policy Framework Paper). Nineteen countries are currently eligible and others may be approved soon.^{9/}

The program established a framework of five elements for case-by-case assistance to eligible countries. This framework includes increased adjustment lending from IDA-8, increased cofinancing and coordinated financing from bilateral and other multilateral donors for adjustment operations, and supplemental IDA adjustment credits. These resources would be provided in conjunction with additional IMF resources from the ESAF and greater debt relief. These five components constitute the pool of additional assistance being made available to eligible debt-distressed countries under the SPA, although the total resources available for some components are not necessarily restricted to African low-income, debt-distressed countries or limited to 1988-90.^{10/}

^{9/} These eligible countries are: Burundi, Central African Republic, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Sao Tome and Principe, Senegal, Tanzania, Togo, Uganda and Zaire. In April 1989, Chad became eligible and Benin and Somalia are expected to be accepted as eligible soon.

^{10/} Some donors have discussed the possibility of including within the framework, proposals to deal with commercial debt not eligible for Paris Club rescheduling. This private debt is about 3 percent of total external debt and 7 percent of debt service payments of the 19 countries currently eligible for the SPA. An objective of any proposal to reduce this private debt would be to transfer to debtor countries the prevailing market discounts on it (which are 75 percent or more). This could be accomplished through a variety of mechanisms, including direct cash buybacks, debt for debt swaps, conversion of debt to equity, exit bonds, or direct contributions by creditor institutions.

Additional IDA-8 adjustment lending. About half of the eighth IDA replenishment has been set aside for Sub-Saharan Africa. Two-thirds of this predominately quick disbursing money is earmarked to debt-distressed countries. This high allocation reflects the addition of \$1 billion above regular project and program lending as IDA's contribution to the SPA. Additional disbursements from IDA's SPA contribution to the 19 currently eligible countries are projected at \$0.7 billion in 1988-90. Overall, the program should enable IDA to increase its disbursements to the low-income, debt distressed countries of the region by about 50 percent, compared with levels during the previous three years.

Increased cofinancing of adjustment operations. Eighteen donor governments and multilateral agencies pledged an initial \$6.4 billion in concessional, quick-disbursing funds for low-income African countries with debt problems. These funds will be provided through both formal cofinancing of specific IDA-supported adjustment operations and other financing coordinated closely with these same operations. About half was estimated to be additional to aid disbursements already planned by donors for these countries. By early 1989, donors had given indications of specific commitments of over \$5 billion, of which about \$1 billion had been disbursed by the end of 1988. If a high rate of disbursements (about 80 percent over 3 years) can be achieved, these commitments could be expected to disburse some \$4 billion during 1988-90. Additional commitments of the pledges would further increase disbursements.

Supplemental IDA adjustment credits. A special allocation for supplemental IDA adjustment credits for IDA-only countries with outstanding IBRD debt (other than for enclave projects) was added in September 1988 to support the SPA. The global allocation would average 10 percent of IDA

reflows and investment income on IDA donor encashments in fiscal 1989-93, divided among qualifying countries in proportion to their IBRD interest payments. Supplemental IDA adjustment credits totaling \$87 million will be provided in 1989 for eight countries (which is equivalent to about ___ percent of their annual IBRD interest obligations). In support of this initiative, the governments of Norway and Sweden also made grant funding available to help meet IBRD debt service in four African countries in 1989.

ESAF. At the end of 1987, the International Monetary Fund set up an Enhanced Structural Adjustment Facility (ESAF), to help low-income countries with protracted external payments problems undertake policy adjustment growth over the medium term. This program supplements the original Structural Adjustment Facility (SAF), which was established in March 1986. Together, these two programs can provide \$11.7 billion (31 percent from the SAF and 69 percent from the ESAF) in 10-year credit, including 5 year's grace, at interest rates of 0.5 percent, to low-income countries, mostly in Africa.^{11/} By the end of 1988, SAF arrangements totaling \$1.3 billion had been agreed for 22 Sub-Saharan African countries, with disbursements of \$0.6 billion. In July 1988, Malawi became the first country to receive assistance from the ESAF, and programs for four more African countries had been approved by the end of 1988 with commitments totalling \$0.9 billion and disbursements \$0.2 billion. ESAF arrangements approved so far provide an average access of about 165 percent of quota, much higher than the 70 percent now available under the SAF.

More concessional debt relief. The SPA calls for continued rescheduling on conventional terms to provide cash-flow relief during 1988-

^{11/} SDRs have been converted to US\$ at US\$1.35 per SDR, the exchange rate at end of March 1986.

90. Such rescheduling has occurred or is expected for 15 of the 19 countries. But the SPA also calls for more concessional debt relief in two forms: (1) further conversion of bilateral ODA loans to grants, and (2) softer terms on rescheduled commercial loans from or guaranteed by creditor governments. Much has been accomplished on both fronts.

More ODA Conversions. In 1987-88 Canada and Germany moved to convert their ODA loans to grants. After the Toronto Summit, Japan added eight low-income countries to its program of financing debt service on its ODA loans with additional grants, bringing the total to 14 in Africa. France recently announced a conversion of ODA loans to grants for a long list of African countries. And the United States is also considering allowing repayment in local currencies for certain types of concessional debt, although this might be financed by transfers out of the aid budget. But the actual short-term cash savings of these cancellations, as explained above, would probably be small--on the order of \$1-2 million a year in addition to conventional rescheduling.

The Concessional Debt Relief Menu. The Toronto agreement, finalized in Berlin at the 1988 Annual Meetings of the World Bank and the IMF, represents a major breakthrough by creditor governments to reduce the burden of their official nonconcessional debt in low-income, debt-distressed countries, mostly in Sub-Saharan Africa. It is a way to lower debt service payments in the shortterm with less build up of nonconcessional debt that must be serviced in the long term. And it established the principle of reducing the stock of official nonconcessional bilateral debt.^{12/}

Creditors agreed on a menu of comparable options to increase the concessionality of rescheduling official nonconcessional debt. These options are:

A. Partial writeoff. Forgiveness of one-third of eligible debt service due during the consolidation period, and rescheduling of the remainder at market interest rates with a 14-year maturity.

B. Longer terms. Rescheduling of eligible debt service due during the consolidation period at market interest rates, but with a 25-year maturity. And

C. Lower interest rates. Rescheduling of debt interest rates (either 3.5 percentage points below or one-half of market rates, whichever gives the smallest reduction), with a 14 year maturity, including 8 years of grace.

Creditor governments have described the three options as comparable in the sense that partial writeoff and lower interest rates offer a similar concessionality, while longer terms, though less concessional involves greater risk as creditors choosing this option would not begin to be paid until after those choosing the other options were repaid.

By the end of 1988, this menu of options had been applied by the Paris Club to five Sub-Saharan countries (Mali, Niger, Tanzania, Madagascar,

^{12/} On ODA debt, the Toronto-Berlin consensus provides for 25-year maturities at interest rate no higher than those originally contracted. Additional concessionality would result only if the rescheduling increases grace and/or maturities.

and Central Africa Republic) and was subsequently been applied to Guinea, Senegal, Guinea, and Uganda in early 1989. In applying the various options, two creditors have chosen to forgive a third of the debt-service obligations on loans covered by the rescheduling arrangements (option A); four creditors have chosen to provide longer maturities of 25 years (option B); and the other Paris Club creditors have chosen to reduce the interest rates charged on the rescheduled debt by up to three and half percentage points (option C). One chose a mix of options depending in part on the type of loan rescheduled. Based on the debt service on nonconcessional debt that the five debtors that rescheduled in 1988 owe to the Paris Club creditors in 1989, which the agreements cover wholly or in part, about half would be covered by option A, a seventh by option B, and a third by option C.^{13/}

The Toronto-Berlin consensus is a helpful step, and it should be applied in future reschedulings of these countries. But it is not a full solution. First, debt owed to regular Paris Club creditors does not account for all official bilateral nonconcessional debt. The debt owed to Paris Club creditors gives rise to only about a third of the total debt service obligations of the five SPA countries whose debt was rescheduled under the menu approach in 1988. Second, the reduction in debt-service payments, over and above that achieved by conventional rescheduling, is limited in the short-term to the savings on moratorium interest payments. For these five countries, the additional reduction in the first year may be no more than \$10

^{13/} Exact coverage is difficult to ascertain in advance because not all debt service owed to Paris Club creditors is eligible for consolidation (for example, debt contracted after the cut off date (1983 in five of the seven applications) is excluded, some previously rescheduled debt (one-fifth of previous rescheduling agreements) is excluded, and arrears may be rescheduled on less favorable terms). It is also up to the debtor to seek similar terms from other creditors that do formally not participate in the Paris Club.

million a year, although the savings in subsequent years will grow progressively by that amount. Third, some creditor governments are financing the debt reduction provided for by the menu by transferring funds from their aid budgets to their creditor agencies. This practice reduces the additionality of the Toronto-Berlin consensus.

Evaluating the Options

The relief to debtor countries that the options agreed on at the Berlin meeting would provide can be compared using two general criteria: increasing net financial transfers, and contributing to creditworthiness.

Net Resource Transfers. Increased resources are needed to enable debt distressed countries to import, invest and grow. Conventional rescheduling does not increase net resource transfers; it simply alters the profile over time of the transfers. Rescheduling actually reduces cumulative net transfers because of the additional financing changes when interest is consolidated (although the net present value of transfers is unchanged). But concessional debt relief can increase transfers by reducing debt service payments over a specified period of time. But this increase will materialize only to the extent that creditors do not finance concessional rescheduling out of existing aid budgets, and that debtors would have eventually serviced their debt. Permanent reduction in nominal debt service payments can be achieved by forgiving debt, writing off debt service as it comes due, or rescheduling at reduced interest rates. Extending terms reduces debt service payments only for a limited period.

Restoring Debt-Servicing Capacity. Restoring normal debt-servicing capacity for these countries will usually require reducing the stock of nonconcessional debt (or the nonconcessional equivalent of the stock of all debt). Debtors that have less nonconcessional debt after rescheduling should be better able to service both that debt and any new borrowing. One way to measure the movement toward debt servicing capacity is to look at the reduction in the nonconcessional equivalent stock of debt under each option at the end of a specified period (e.g., when the consolidation period ends). Nonconcessional debt can be reduced by borrowers repaying it as scheduled, by rescheduling it at below-market interest rates, or by creditors writing it off. Rescheduling on conventional terms alone does not reduce the stock of debt and consolidation of interest obligations actually increases it.

These criteria are used here to compare the three options now being applied by the Paris Club with two other options chosen as benchmarks for comparison:

No rescheduling. This option assumes that debtor countries are able to pay all of their debt service obligations on time, which they are unlikely to be able to do without a substantial increase in financial resources or a severe compression of growth. This option, however, provides a point of reference for assessing the benefits of the various rescheduling options.

Conventional rescheduling. This option represents the average rescheduling terms that the Paris Club has given the ten low-income debt distressed countries that rescheduled during 1987-88 before the menu of options began to be applied. These consist of rescheduling virtually all nonconcessional debt service at market rates with an 18-year maturity,

including 8 years grace. No country received exactly those terms (half got better terms, half worse) but they serve as a benchmark for the current practice, against which the more concessional rescheduling options can be assessed.

The following analysis compares the benefits of these options for 22 low-income debt distressed countries currently eligible for the Special Program of Assistance. It is based on the results using the World Bank's rescheduling model and debt data compiled for the World Debt Tables, and focuses only on nonconcessional debt owed by these countries to Paris Club creditors (including pari passu debt). Although the specific empirical results depend on the debt structure of the countries analyzed and on the various assumptions about the implementation of the options, the results nonetheless indicate the relative merits of the various proposals. The accompanying box defines and explains the indicators shown in table 7.

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Box: Interpreting the data

Table 7 shows comparative indicators for the five rescheduling scenarios studied. Table 8 shows annual debt service obligations during 1988-2025 and the remaining stock of debt at the end of each year for each the five options. Graphs 1 and 2 compare the streams of debt-service payments and the stocks of remaining nonconcessional debt after rescheduling under each option.

The net present value (NPV) of total debt service payments during 1988-2025 (columns 1 and 2 of Table 7) is based on all payments during the life of the loan, account taken of any rescheduling.^{14/}

^{14/} For these columns, the period covered is 1988-2025, whereas the rest of the table refers to the cumulative consolidation period, 1988-2000.

The relative grant element of each option (column 3) is the proportion by which the NPV of debt service payments without rescheduling is reduced by each option. It measures the concessionality provided by the option (higher values denote options that are more concessional) and can be used to rank the options in terms of overall concessionality.^{15/}

The nonconcessional equivalent debt stock at year-end 2000 (columns 4 and 5) shows the present discounted value, as of the year 2000, of all future principal and interest payments outstanding at the end of the cumulative consolidation period. Nonconcessional equivalent debt increases because of the rescheduling of interest obligations at market rates during 1988-2000 and decreases as a result both of actually paying principal after the end of the grace period and of applying concessional moratorium interest rates on rescheduled amortization obligations. Longer terms result in higher debt at the end of the consolidation period, because principal payments are delayed longer and are smaller each year.

Information on debt service obligations during 1988-2000 (columns 6-11) covers principal and interest on both original debt and new debt resulting from consolidating interest obligations. Total debt service obligations are shown in both nominal dollars and in terms of their net present value. (The NPV figures in column 11 are smaller than the sum of columns 1 and 2 because the former do not include payments during 2001-25.)

^{16/} The NPV of debt service payments without rescheduling is slightly less than the actual stock of debt at the end of 1987 because the standard discount rate is higher than the current market interest rate used here (10 and 9 percent, respectively). Thus, these "relative grant elements" understate the total concessionality (as conventionally defined) of each option to the extent that standard terms before rescheduling already provided some concessionality. But the ranking of options is unaffected.

The amount of debt service rescheduled (columns 12 and 13) is simply the sum of annual consolidations of debt service during 1988-2000. The amounts shown variously overstate the actual contribution of each option to increasing net financial flows because they have not been reduced by the additional interest that accrues on rescheduled principal obligations and on consolidated interest obligations (which is shown in column 9) or by principal payments on debt service that may have been rescheduled during the first part of the consolidation period but has come due after the expiration of the grace period.

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Comparative Results

In terms of the first general criterion for evaluating the options--the increase in net financial transfers to debtor countries--the options can be compared using figures in column 10 of table 7. Options A (partial writeoff) and C (lower interest rates) are roughly comparable as currently defined. Over the consolidation period (1988-2000), total debt service payments, if made on time, in nominal terms, would be only about three fourths of the level that would result with conventional rescheduling (second line in table 7). However, there are significant differences. Option A results in higher total interest payments during 1988-2000 and in higher annual debt service payments until 1996, when the grace period ends and the principal payments start coming due, which are larger under Option C. Option B (longer terms) would result in somewhat higher overall debt service payments than options A and C, although still substantially less (about 17 percent) during 1996-2000 than under conventional rescheduling. Option B would also result in lower annual debt service payments than either A or C between the late 1990s

and the early 2000s, during the period after the end of the grace period for A and C and before the end of the grace period for B.

In terms of increased concessionality, which is a measure of the quality of the increase in net financial transfers, both Option A and C are substantially more concessional than the conventional practice (compare figures in column 3 of table 2), with option A (partial writeoff) being more concessional under the specific empirical assumptions in this analysis. Option B provides no additional concessionality, compared to recent Paris Club rescheduling practice (second line) because rescheduling at market interest rates with no forgiveness merely postpones repayment while accruing additional charges at commercial interest rates in the interim.

In terms of the second criterion--the extent to which different options reduce the stock of nonconcessional debt and thereby help debtor countries regain creditworthiness--Option A and C again accomplish more. Under Option A (partial writeoff) the stock of nonconcessional debt at the end of the consolidation period (the year 2000) would be less than 60 percent of the level remaining after conventional rescheduling (compare figures in column 5 of table 2). Option C (lower interest rates) would reduce the nonconcessional equivalent end-2000 debt by one quarter. By contrast, Option B (longer terms) would actually increase the stock of debt at the end of the consolidation period (the year 2000) compared to recent practice because there would be no repayment of any of the debt until 2001.

The year-by-year profiles of debt and debt service also are important. As table 8 and graph 2 show, all of the rescheduling options studied, including the recent practice, have something in common. All reduce

debt service compared to obligations without rescheduling for eight years (the length of the grace period under conventional rescheduling as well as the one assumed for options A and C). But they do so at the expense of higher debt service later on, lasting well into the next century. In graph 2 showing the profile of debt service, each of the options starts out below the line representing no rescheduling. The distance by which they are below this line shows the amount of debt service relief, or the increase in net financial transfer. By 1996, all of the options are above the no-rescheduling line. The distance above shows by how much the rescheduling increase debt service in the future.

As graph 2 shows, Options A and C provide more debt service relief in the early years, up through 1995. Option B and conventional rescheduling are identical during this period. In general, debtor governments probably consider debt service relief given up front to be worth more than the same nominal amount of debt service relief later on, because their needs are immediate and the future is, in any case, uncertain.

Beginning in 1996, graph 2 shows that debt service would rise more slowly under Option B than under A and C, until early in the next century. Option B would thus provide a somewhat longer period during which financial obligations would be less than under conventional rescheduling--a longer period during which debtor countries would be able to restructure their economies and attempt to regain creditworthiness. In a sense, Option B postpones longer the problem of the future bulge in debt service obligations. But the timing of this bulge depends on the grace period used, while its size depends on the length of the actual repayment period.

The year-by-year profile of the stock of debt is also important. As

graph 1 on nonconcessional debt shows, Option C (lower interest), as well as repayment as scheduled (no rescheduling), brings down the stock of nonconcessional debt quickest, although the remaining debt service due on the concessional debt is substantial. Option A is almost equivalent in its effect of the nonconcessional equivalent stock of debt. Other options (longer terms (B), and conventional rescheduling) temporarily increase the stock of debt because of interest capitalization. Option B prolongs the debt burden the longest.

To sum up, the possible concessional debt relief from the Paris Club will vary depending on the economic circumstances of the country, its particular debt profile and its mix of creditors. But the options outlined at Toronto and adopted by the Paris Club are clearly constructive steps in the right direction. They would provide the concessional debt relief that these countries require to lower debt-service obligations in the next few years and to help assure that they remain manageable in the near future.

The three proposed options have similar concessionality, when account is taken of the higher risk faced by creditors granting longer terms. But they affect the debtor's debt service profile differently and some combinations might serve best the needs of certain debtors while different ones would help others more. Partial forgiveness (A) would provide the lowest and shortest debt service profile, which should speed a country's return to creditworthiness. But as currently proposed, it would not provide the most financial relief in the near term. Longer terms (B) would give financial relief for a longer period, but it would offer no better relief than conventional rescheduling in the short term and would eventually require larger overall debt service payments. Lower interest rates (C), as defined in the proposal, would give more financial relief up front but at the cost of

requiring, around the end of the century, the highest debt service payments of any option.

The Problem of Commercial Bank Claims

Holders of commercial bank claims on debt distressed countries may tend to benefit disproportionately as the Paris Club puts into place these concessional rescheduling proposals.^{16/} Several of the debt distressed countries have been identified as countries in which a reduction in the face value of claims (implicit in the case of a concessional rescheduling) would increase the likely future repayment stream, making both the debtor country and the creditors better off. (See Claessens 1988 and Cohen 1989.) That benefit would accrue heavily to the holders of commercial bank claims if bilateral official creditors were to provide the entire amount of debt forgiveness.

A debt facility would be one way to reserve this gain for the debt-distressed countries, instead of allowing a gain to holders of commercial bank claims at the expense of official creditors. A debt facility is defined as an official entity that would buy all or part of the commercial bank debt of a developing country and forgive a portion of that debt. A facility can operate directly on its own behalf or indirectly, loaning or giving the funds to the debtor country. (See Corden 1988.) In the latter case, the debtor country would negotiate to repurchase its debt, as Bolivia has recently done. A debt-distressed country facility would provide a means of spreading the costs of debt forgiveness to commercial banks, in keeping with the concept of equitable

^{16/} Ironically, the commercial banks originating the loans may not be the primary beneficiaries, to the extent that they have sold their claims at a discount on the secondary market.

burden sharing among creditors.

Proposed facilities have been criticized in the past for potentially breaking important creditor debtor relationships. For most of the debt distressed countries--and all of those debt distressed countries whose debt would be considered eligible for facility purchase--that relationship is likely to be quite unimportant for the foreseeable future. An exception is the short-term trade credit relationship. These claims (except for those that have been in arrears for a long period and are de facto long term debt) should be excluded from consideration for purchase by a facility.

Unlike a facility designed for the purchase of the debt of highly indebted middle income countries, a facility for the purchase of the long-term commercial bank liabilities of the debt-distressed countries would not necessarily face large potential losses or put large amounts of official funds at risk. An estimated \$3.5 billion would be eligible for purchase by a debt distressed country debt facility. At current market prices, that debt could be purchased for less than \$350 million.^{17/} A combination of a "take it or leave it offer" plus regulatory persuasion may convince banks to sell at prices near current levels. If the debt were to be purchased at open auction, the commercial banks would, of course, reap the benefit of the post-purchase debt forgiveness. The auction price at which they would sell to the facility would be substantially above the current market price. (See Dooley 1987.)

Other options for sharing the burden of debt relief across commercial creditors include official tax and regulatory support for donations of claims to aid agencies or to charitable organizations. "Debt for nature" and "debt

^{17/} Prices are not quoted for the debts of many of the potentially eligible countries. The above estimate was based on the secondary market prices for the debt of Sudan and Zaire, considering more of the debt to be closer to the price of Sudan's debt.

for development" swaps have already occurred on a small scale. In some cases commercial banks donated their claims to the recipient. The recipient aid, charitable, or environmental agency uses the local currency proceeds for local projects, reducing the debtor's external transfer. Currently, the tax advantage for these donations is outweighed, at least in the United States, by the combined cash and tax proceeds from secondary market sales. (See Burton 1988). In other cases, ODA or donated funds have been used to purchase commercial bank claims on the secondary market. These purchases run the risk of raising secondary market prices and relieving commercial banks from burden sharing. (If the problem commercial bank debts are a small part of a country's total debt, burden sharing with banks may not be a major issue.)

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Appendix Table 1
IDA-Only Countries of Sub-Saharan Africa
External Debt at end-1987
(U.S. dollars, billions)

		Percent Share
1	Total Debt	71.6 100.0
2	Long-Term	59.4 83.0
3	Public and Pub. Guar.	58.2 81.3
4	Official Creditors	50.8 71.0
5	Multilateral	19.9 27.8
6	Concessional	15.4 21.5
7	Nonconcessional	4.5 6.3
8	Bilateral	30.9 43.1
9	Concessional	17.9 25.1
10	Nonconcessional	12.9 18.1
11	Private Creditors	7.4 10.3
12	Paris Club Eligible	6.0 8.4
13	Commercial Banks	1.4 2.0
14	Private Non-Guaranteed	1.2 1.7
15	IMF	5.6 7.8
16	Short-Term 1/	6.6 9.2
Memorandum Items:		
17	Concessional	33.3 46.6
18	Nonconcessional	38.2 53.4
19	Exposure of Priv. Creditors 2/ (13+14+16)	9.2 12.8
20	Exposure of Offic. Creditors 2/ (4+12+15)	62.4 87.2

1/ Including interest arrears on long-term public debt.

2/ A small share of the short term debt is likely to be from an official source or to carry an official guarantee.

Appendix Table 2
Structure of External Debt For IDA-Only African Countries In 1987
(\$US Millions)

DEBTOR COUNTRY	OFFICIAL BILATERAL DEBT		PRIVATE-SOURCE DEBT				OFFICIAL MULTILATERAL DEBT		IMF PURCHASES	TOTAL
	CONCESS.	NON- CONCESS.	PARIS	LONDON	SHORT TERM	OTHER	CONCESS.	NON- CONCESS.		
			CLUB ELIG.*/	CLUB ELIG.**/						
BENIN, PEOPLE'S REPUBLIC OF	145	26	360	35	204	.	324	40	.	1,133
BURKINA FASO	196	70	35	3	67	.	437	54	.	861
BURUNDI	201	3	20	.	37	.	440	55	.	755
CAPE VERDE	32	13	3	.	11	.	57	16	.	131
CENTRAL AFRICAN REPUBLIC	148	87	26	.	28	.	230	29	37	585
CHAD	55	22	42	0	38	.	146	4	10	318
COMOROS	77	1	0	.	15	.	95	14	.	203
DJIBOUTI	71	3	3	.	29	.	75	.	.	181
EQUATORIAL GUINEA	55	68	9	.	11	.	36	7	8	193
ETHIOPIA	1,106	45	257	140	94	9	811	66	63	2,590
GAMBIA, THE	70	19	8	9	23	.	148	19	23	319
GHANA	662	41	192	110	108	.	994	238	778	3,124
GUINEA	793	258	93	6	138	.	359	108	30	1,784
GUINEA-BISSAU	99	37	82	.	31	.	154	19	2	424
KENYA	1,328	327	722	56	591	496	835	1,213	381	5,950
LESOTHO	12	5	14	3	4	.	175	29	.	241
LIBERIA	413	79	74	123	175	.	211	252	291	1,618
MADAGASCAR	616	1,366	149	126	119	.	777	80	144	3,377
MALAWI	194	99	24	25	98	.	660	152	110	1,363
MALI	1,119	31	55	5	94	1	624	12	75	2,016
MAURITANIA	929	263	120	7	119	.	375	174	47	2,035
NIGER	251	276	102	129	75	254	446	55	91	1,679
RWANDA	136	0	11	.	39	.	396	2	.	583
SAO TOME & PRINCIPE	30	18	1	.	4	.	35	0	.	87
SENEGAL	923	836	134	124	319	42	818	232	267	3,695
SIERRA LEONE	140	96	84	3	63	.	171	19	83	659
SOMALIA	1,343	187	66	20	92	81	566	25	154	2,534
SUDAN	2,453	2,388	2,022	27	2,019	.	1,216	143	859	11,126
TANZANIA	1,105	1,131	424	1	192	9	1,070	338	65	4,335
TOGO	119	404	39	43	102	.	387	50	78	1,223
UGANDA	153	112	58	.	60	.	662	130	229	1,405
ZAIRE	1,616	3,485	382	496	462	.	1,136	219	833	8,630
ZAMBIA	1,340	1,143	389	221	1,089	.	524	738	957	6,400
TOTAL	17,930	12,939	6,000	1,712	6,550	892	15,390	4,532	5,615	71,557

*/ ESTIMATED; PARIS CLUB INCLUDES ALL SUPPLIERS' CREDITS & FIXED RATE BANK LOANS.

**/ ESTIMATED; LONDON CLUB INCLUDES ONLY VARIABLE RATE LONG TERM BANK LOANS TO OR GUARANTEED BY THE DEBTOR COUNTRY.

NOTE: For the purposes of this paper, the set of low-income African countries is taken as those African countries whose access to the World Bank is limited to the World Bank's soft loan facility, the International Development Association. External debt data for Mozambique, an IDA-only country, are not available.

Table 3: Grant Equivalent Flows and Grant Element of Flows to Keep Nonconcessional Debt To Export Ratio Constant at End-1987 Level

19 Sub-Saharan African Countries Eligible for the Special Program of Assistance
(data in U.S. dollars, billions, unless otherwise noted)

	1987	1988	1989	1990	1991	1992	1993	1994	1995
1 Noncon. Equiv. Debt	32.4	34.9	37.7	40.8	44.0	47.5	51.3	55.4	59.9
2 D/E (percent)	330	330	330	330	330	330	330	330	330
3 CA Deficit 1/		2.6	2.8	3.0	3.3	3.5	3.8	4.1	4.4
4 Exports of G. and S.		10.6	11.4	12.4	13.4	14.4	15.6	16.8	18.2
5 Imports of G. and S., Excluding Interest		15.8	17.1	18.4	19.9	21.5	23.2	25.1	27.1
6 (5-4) Non-interest Trade Def.		5.2	5.6	6.1	6.6	7.1	7.6	8.3	8.9
7 Interest on debt 2/		2.9	3.1	3.4	3.7	4.0	4.3	4.6	5.0
8 (6+7) CA Deficit, Before Grants		8.1	8.8	9.5	10.2	11.0	11.9	12.9	13.9
9 (8-3) Grants Required		5.5	6.0	6.4	7.0	7.5	8.1	8.8	9.5
10 Grant Element of Loan and Grant Flows (percent) 3/		68	68	68	68	68	68	68	68

Grants Required to return D/E to 200 percent by 1995

19 Sub-Saharan African Countries Eligible for the Special Program of Assistance
(data in U.S. dollars, billions, unless otherwise noted)

Target Level of Debt								36.3
Debt in 1995 (from Table 4)								59.9
Present Discounted Value of Difference:								11.8
		1989	1990	1991	1992	1993	1994	1995
Annual Supplemental Grants Required to Achieve D/E Target:								
11 1989-1995		1.84	2.01	2.19	2.38	2.60	2.83	3.09
Undiscounted Total	16.9							
12 (11+9) Total Grants Required		7.4	8.0	8.6	9.3	10.1	10.9	11.9
13 (2-11) CA Deficit After Grants 1/ Grant Element of Loan and Grant Flows (percent)		91	91	91	91	92	92	92

1/ Deficit implied by the target change in debt, abstracting from exchange rate changes among major currencies. This is the current account deficit financed by nonconcessional borrowing.

The current account deficit would be larger if it were financed by concessional loans, with a corresponding drop in grants. However, as long the grant element (line 10) remains unchanged, the time path of nonconcessional equivalent debt would be identical.

2/ Assuming an average interest rate of nine percent on the non-concessional equivalent external debt.

3/ Line nine divided by the sum of lines nine and three.

Creditor Country : All bilateral creditors (including Paris-Club)
 Type of Debt Resched: Total nonconcessional Paris Club eligible debt
 Debtor Country : SFA-eligible countries 2/
 Consolidation : 1983 to 2000

Table 7. Comparative indicators for rescheduling options: all creditors each option. 1/

(US\$ Millions)

OPTION	- NET PRESENT VALUE OF TOTAL DEBT SERVICE PAYMENTS 4/ (1988-2025)			- REMAINING DEBT STOCK - (end 2000)		- PAYMENTS - (1988-2000)						- AMOUNTS RESCHEDULED - in nominal terms (1988-2000)	
	Principal	Interest	Relative Grant Element (Percent) 5/	Total	Of Which Nonconcessional Equivalent	Principal		Interest		Nominal value	Total Net present value	Principal	Interest
						On original debt	On consolidated interest	On original debt	On consolidated debt service				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
1. No Rescheduling	6,921	3,419	0	202	182	10,610	0	4,887	0	15,497	10,286
2. Free-Toronto Rescheduling : Rescheduling all debt service at market rates with 8 years grace and 18 years maturity 3/	3,506	7,141	13	12,485	12,108	2,006	1,208	8,379	4,222	15,815	7,024	10,610	4,857
3. Toronto Options													
A. Partial Forgiveness : Annual cancellation of 1/3 debt service payments, rescheduling remaining debt service at market rates with 8 years grace and 14 years maturity.	2,733	4,366	31	6,962	6,720	2,229	1,342	5,436	2,723	11,730	5,068	7,674	3,258
B. Extended Terms : Rescheduling all debt service at market rates with 14 years grace and 25 years maturity.	2,034	8,680	14	15,699	15,380	0	0	8,716	4,428	13,145	6,111	10,610	4,897
C. Lower Interest Rates : Rescheduling all debt service at 350 basis points below market rates with 8 years grace period and 14 years maturity.	4,077	4,093	22	10,342	9,056	3,344	2,014	4,953	2,496	12,636	5,371	10,610	4,887

NOTES :

- 1/ The figures presented here are based on data from the World Bank's Debtor Reporting System (DRS), and a World Bank rescheduling model. All rescheduling options are for serial rescheduling over a cumulative consolidation period of 15 years (1988-2000), 100 percent consolidation of principal and interest, and no re-rescheduling after 1987. The moratorium interest rate (9 percent) is the average dollar denominated interest rate on rescheduled loans in 1988. Projections are based on March 1989 exchange rates and market interest rates and assume no new disbursements.
- 2/ The debtor countries included in this table are the 22 SFA-eligible countries—Benin, Burundi, Chad, CAR, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Madagascar, Mali, Malawi, Mauritania, Mozambique, Niger, Sao Tome & Principe, Senegal, Somalia, Tanzania, Togo, Uganda, and Zaire.
- 3/ Average Paris Club terms accorded to these countries in 1987-88.
- 4/ Based on 9 percent discount rate.
- 5/ Degree of concessionality of each option compared with no rescheduling.

Table B. Reductions in debt service payments and remaining debt stock under rescheduling options: all creditors each option. 1/ 3/

(US\$ Millions)

Options	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1. No Rescheduling																			
- Debt service due	3,883	1,978	1,789	1,673	1,534	1,394	1,214	889	503	276	142	123	100	65	71	14	12	10	10
- Remaining debt stock, end period	8,735	7,201	6,083	4,969	3,888	2,839	1,865	1,122	706	481	376	281	202	132	70	61	53	46	40
2. Rescheduling all debt service at market rates with 8 years grace and 18 years maturity. 3/																			
- Reduction in debt service due compared to option 1	3,708	1,540	1,181	909	626	355	56	(363)	(997)	(1,521)	(1,810)	(1,946)	(2,056)	(2,209)	(2,229)	(2,214)	(2,155)	(2,061)	(1,761)
- Remaining debt stock, end period	12,618	13,062	13,733	14,292	14,745	15,090	15,330	15,476	15,368	14,932	14,294	13,473	12,485	11,259	9,912	8,512	7,043	5,537	4,265
3. Toronto Options																			
A. Partial Forbearance:																			
Annual cancellation on 1/3 debt service payments rescheduling remaining debt service at market rates.																			
- Reduction in debt service due compared to option 1	3,767	1,686	1,383	1,164	929	701	442	54	(579)	(1,121)	(1,419)	(1,562)	(1,677)	(1,834)	(1,651)	(1,343)	(1,126)	(905)	(692)
- Remaining debt stock, end period	11,323	11,109	11,183	11,184	11,126	11,007	10,842	10,691	10,394	9,812	9,051	8,096	6,962	5,698	4,333	3,320	2,440	1,710	1,175
B. Extended Terms:																			
Rescheduling all debt service at market rates with 14 years grace and 25 years maturity.																			
- Reduction in debt service due compared to option 1	3,708	1,540	1,181	909	626	355	56	(363)	(811)	(1,072)	(1,226)	(1,257)	(1,291)	(1,395)	(1,563)	(1,602)	(1,626)	(2,002)	(2,091)
- Remaining debt stock, end period	12,618	13,062	13,733	14,292	14,745	15,090	15,330	15,476	15,562	15,614	15,651	15,679	15,699	15,629	15,371	14,939	14,317	13,579	12,615
C. Lower Interest Rates:																			
Rescheduling all debt service at 350 basis points market rates with 8 years grace and 14 years maturity.																			
- Reduction in debt service due compared to option 1	3,776	1,710	1,417	1,206	979	759	506	124	(615)	(1,321)	(1,727)	(1,972)	(2,183)	(2,430)	(2,221)	(1,816)	(1,541)	(1,252)	(866)
- Remaining debt stock, end period	12,618	13,062	13,733	14,292	14,745	15,090	15,330	15,476	15,239	14,478	13,389	12,003	10,342	8,346	6,465	4,950	3,634	2,542	1,683
Of which nonconcessional	8,735	7,201	6,083	4,969	3,888	2,839	1,865	1,122	706	481	376	281	202	132	70	61	53	46	40

NOTES:

- 1/ The figures presented here are based on data from the World Bank's Debtor Reporting System (DRS), and a World Bank rescheduling model. All rescheduling options are for serial rescheduling over a cumulative consolidation period of 13 years (1988-2000), 100 percent consolidation of principal and interest, and no re-rescheduling after 1987. The moratorium interest rate (9 percent) is the average dollar denominated interest rate on rescheduled loans in 1988. Projections are based on March 1989 exchange rates and market interest rates and assume no new disbursements.
- 2/ The debtor countries included in this table are the 22 SPA-eligible countries—Benin, Burundi, Chad, CAR, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Madagascar, Mali, Malawi, Mauritania, Mozambique, Niger, Sao Tome & Principe, Senegal, Somalia, Tanzania, Togo, Uganda, and Zaire.
- 3/ Average Paris Club terms accorded to these countries in 1967-88.

Table 5. Reductions in debt service payments and remaining debt stock under rescheduling options: all creditors each option. 1/ 3/

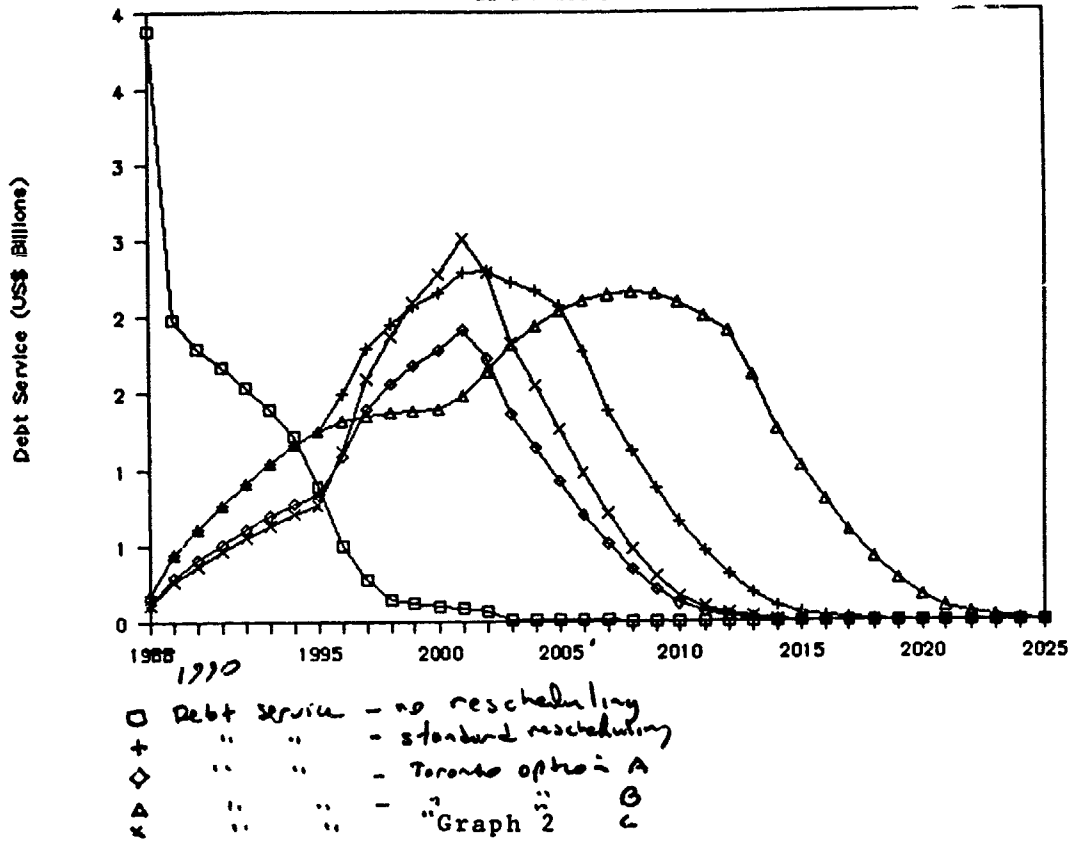
(US\$ Millions)

OPTION	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1. No Rescheduling																			
- Debt service due	7	6	4	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1
- Remaining debt stock, end period	36	31	28	25	23	21	20	20	19	19	12	4	4	4	3	3	3	2	2
2. Rescheduling all debt service at market rates with 8 years grace and 18 years maturity. 3/																			
- Reduction in debt service due compared to option 1	(1,374)	(1,111)	(872)	(656)	(467)	(307)	(183)	(102)	(57)	(33)	(17)	(5)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
- Remaining debt stock, end period	3,154	2,280	1,576	1,032	635	370	210	120	70	40	17	4	4	4	3	3	3	2	2
3. Toronto Options																			
A. Partial Forgiveness :																			
Annual cancellation of 1/3 debt service payments rescheduling remaining debt service at market rates.																			
- Reduction in debt service due compared to option 1	(500)	(336)	(203)	(114)	(63)	(36)	(19)	(6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
- Remaining debt stock, end period	31	419	239	137	79	44	26	20	19	19	12	4	4	4	3	3	3	2	2
B. Extended Terms :																			
Rescheduling all debt service at market rates with 14 years grace and 25 years maturity.																			
- Reduction in debt service due compared to option 1	(2,135)	(2,154)	(2,140)	(2,086)	(2,001)	(1,896)	(1,815)	(1,260)	(1,014)	(793)	(596)	(425)	(279)	(166)	(93)	(52)	(30)	(16)	(5)
- Remaining debt stock, end period	11,560	10,387	9,119	7,789	6,423	5,039	3,821	2,859	2,064	1,426	927	561	321	176	95	49	22	7	2
C. Lower Interest Rates :																			
Rescheduling all debt service at 350 basis points market rates with 8 years grace and 14 years maturity.																			
- Reduction in debt service due compared to option 1	(703)	(475)	(289)	(162)	(91)	(52)	(28)	(9)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
- Remaining debt stock, end period	1,048	613	344	193	107	56	29	20	19	19	12	4	4	4	3	3	3	2	2
Of which nonconcessional	36	31	28	25	23	21	20	20	19	19	12	4	4	4	3	3	3	2	2

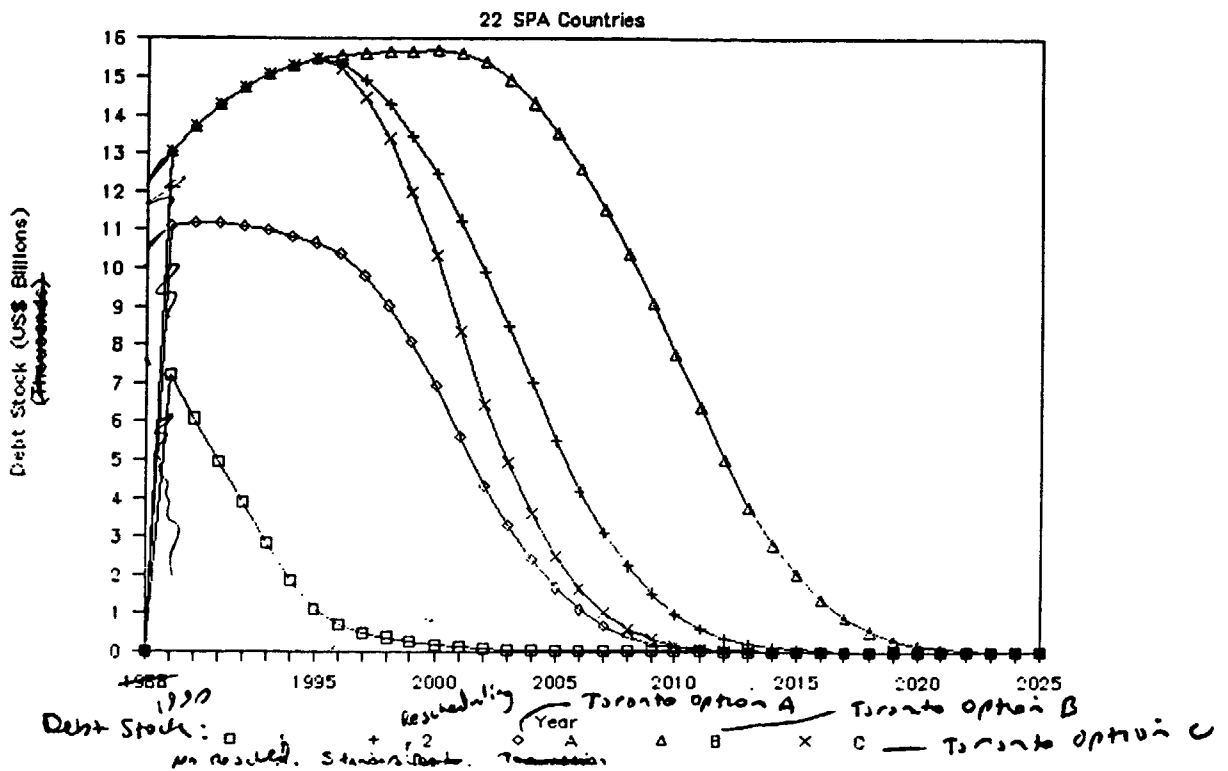
NOTES :

- 1/ The figures presented here are based on data from the World Bank's Debtor Reporting System (DRS), and a World Bank rescheduling model. All rescheduling options are for serial rescheduling over a cumulative consolidation period of 13 years (1988-2000), 100 percent consolidation of principal and interest, and no re-rescheduling after 1987. The moratorium interest rate (9 percent) is the average dollar denominated interest rate on rescheduled loans in 1988. Projections are based on March 1989 exchange rates and market interest rates and assume no new disbursements.
- 2/ The debtor countries included in this table are the 22 SPA-eligible countries—Benin, Burundi, Chad, CAR, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Madagascar, Mali, Malawi, Mauritania, Mozambique, Niger, Sao Tome & Principe, Senegal, Somalia, Tanzania, Togo, Uganda, and Zaire.
- 3/ Average Paris Club terms according to these countries in 1987-88.

Debt Service – Toronto Term Comparison 22 SPA Countries



Debt Stock – Toronto Terms



Data for Graph 1
 Data in US \$ mil.

DEBENT SERVICE		1995																		
year		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
DEB. RESURGEOLING		1.663	1.9782	1.7856	1.6727	1.5342	1.3944	1.2136	0.8669	0.5033	0.2761	0.1419	0.1229	0.0996	0.0845	0.0706	0.0136	0.0118	0.0102	0.0095
DEB. CONVENTIONAL RESUR.		0.174735	0.438489	0.607995	0.763753	0.940464	1.039851	1.157211	1.251823	1.499885	1.797357	1.952183	2.066576	2.155343	2.293359	2.300006	2.227679	2.167175	2.071344	1.770235
DEB. TILFONTO OPTION A		0.11649	0.292326	0.40533	0.509169	0.605376	0.693234	0.771474	0.834549	1.022129	1.397265	1.566734	1.684964	1.776922	1.916892	1.721807	1.356223	1.138067	0.915680	0.701925
DEB. TILFONTO OPTION B		0.174735	0.438489	0.607995	0.763753	0.940464	1.039851	1.157211	1.251823	1.314472	1.349545	1.368353	1.380271	1.390284	1.479286	1.633723	1.815467	1.937318	2.030698	2.099774
DEB. TILFONTO OPTION C		0.146782	0.267965	0.371552	0.466738	0.554928	0.635464	0.707164	0.765003	1.117973	1.596611	1.868713	2.094579	2.242800	2.514890	2.291751	1.836073	1.552992	1.262090	0.975709

Data for Graph 2

DEB. RESURGEOLING	5.7346	7701.1	663.2	469.2	3888.3	2839.1	1865.1	1122.1	705.5	466.8	375.9	281.1	262	131.9	69.8	61	53.1	46.4	40
DEB. CONVENTIONAL RESUR.	12.6178	1362.3	13733	14291.7	14745	15090.2	15329.8	15475.7	15368.25	14932.44	14293.89	13473.37	12484.91	11259.42	9911.535	8511.82	7043.395	5537.2	4204.535
DEB. TILFONTO OPTION A	11.7746	1106.56	11183.36	11184.2	11126.1	11006.5	10841.56	10691.16	10394.37	9812.4	9051.488	8095.716	6961.95	5608.683	4333.05	3320.133	2440.038	1710.138	1135.477
DEB. TILFONTO OPTION B	12.6178	1362.3	13733	14291.7	14745	15090.2	15329.8	15475.7	15368.24	15613.8	15650.8	15678.9	15699.4	15629.3	15590.7	14938.98	14316.94	13538.77	12615.14
DEB. TILFONTO OPTION C	12.6178	1362.3	13733	14291.7	14745	15090.2	15329.8	15475.7	15238.81	14478.2	13389.28	12003.02	10341.92	8346.175	6464.675	4949.7	3633.568	2542.068	1683.216

Data for Graph 1
 Data in US \$ mil.

DEBENT SERVICE		2010																2020					2025				
year		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025							
DEB. RESURGEOLING		0.0005	0.0006	0.0003	0.0038	0.003	0.0021	0.0012	0.0011	0.0009	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005							
DEB. CONVENTIONAL RESUR.		1.36e45	1.116327	0.876277	0.659546	0.470235	0.349312	0.184262	0.103390	0.057944	0.033283	0.017877	0.005804	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005							
DEB. TILFONTO OPTION A		0.50e452	0.341164	0.207702	0.117456	0.066383	0.038281	0.020397	0.006882	0.0009	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005							
DEB. TILFONTO OPTION B		2.141751	2.159130	2.147896	2.090028	2.003564	1.898123	1.615764	1.261299	1.015383	0.793406	0.596733	0.425359	0.279883	0.167020	0.093591	0.052358	0.030102	0.016267	0.005231							
DEB. TILFONTO OPTION C		0.709949	0.481051	0.293694	0.165809	0.093667	0.054286	0.029236	0.009628	0.0009	0.0007	0.0006	0.0006	0.0006	0.0006	0.0004	0.0005	0.0005	0.0005	0.0005							

Data for Graph 2
 continued

DEB. RESURGEOLING	35.5	31.4	27.9	25	22.7	21	20.3	19.5	19.1	18.8	11.9	4	3.7	3.5	3.2	3	2.7	2.4	2.2
DEB. CONVENTIONAL RESUR.	3153.63	2280.32	1575.695	1032.015	635.365	369.715	210.19	120.175	69.53	39.865	18.88	4	3.7	3.5	3.2	3	2.7	2.4	2.2
DEB. TILFONTO OPTION A	710.7155	418.6611	278.8888	136.8611	78.73333	44.42777	25.83333	19.5	19.1	18.8	11.9	4	3.7	3.5	3.2	3	2.7	2.4	2.2
DEB. TILFONTO OPTION B	11560.28	10367.28	9119.318	7788.668	6423.190	5039.313	3820.9	2858.690	2063.572	1425.586	927.3681	560.9681	320.7136	176.1272	94.72272	48.84545	21.88818	6.927272	2.2
DEB. TILFONTO OPTION C	1481.396	812.5916	344.3833	192.7916	106.75	56.14166	28.6	19.5	19.1	18.8	11.9	4	3.7	3.5	3.2	3	2.7	2.4	2.2

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